

REMARKS

Reconsideration of the pending claims is respectfully requested in view of the above amendments and following remarks.

Claim 15 has been cancelled.

New claim 17 has been inserted, which specifies that the medium comprises a plurality of swellable porous ink receiving layers, each comprising a swellable porous foamed hydrophilic polymer.

New claim 18 has been inserted, which requires that the medium consists of one or more swellable porous ink receiving layers.

The amendments to the claims are supported by the specification including the Examples.

Entry of the present amendments is respectfully requested.

Two Declarations are submitted herewith in support of the application and will be referred to in the following remarks. They are by Julie Baker, named inventor on the present application, and Charles D. DeBoer, named inventor or cited reference, US 6,299,302.

The Examiner is thanked for her time in taking a telephone interview with Applicants' representatives. A summary of the interview is included herein, as reported in the Office Communication of November 29, 2006, prior to addressing the rejections of the last Office Action. The issues discussed in the interview will be remarked upon at appropriate points below when addressing specific rejections made in the last Office Action.

Substance of Interview of November 26, 2006

The Substance of the Interview with Examiner Schwartz and Applicants' representatives of November 26, 2006, was, according to the Office Communication of November 29, 2006, as follows:

Applicants' representatives argued in the Interview of November 26, 2006 that a "base layer" as disclosed in the Baker patent (EP 1060901) cannot be considered an "ink receiving layer". With respect to DeBoer et al (US 6,299,302), Applicants' representatives argued that inclusion of a blowing agent won't necessarily result in a foamed layer and that the claimed layer to be swellable, cannot include pigment as disclosed by DeBoer. These arguments are not persuasive. There is nothing in the structure or materials of the base layer of Baker to distinguish the layer from an ink receiving layer. A top layer does not prevent this layer from receiving ink or from being capable of absorbing dye. With respect to DeBoer et al, blowing agents are well known and one of ordinary skill in the art would have expected such agents to result in gas bubbles in the layer. The term "swellable", unless clearly defined in the specification does not preclude the presence of particles in the layer. While this term is used in the art, it refers to layers that may contain various amounts of pigments or particles. If the layer includes a swellable polymer, it will swell to some degree.

Unfortunately, this summary is a seriously inaccurate reflection of Applicants' main arguments.

First, Applicants' point was that the "base layer" of EP '901 cannot be considered an "image-receiving layer." The ink receiving layer(s) claimed in the present invention, since they absorb the dye, function as image-receiving layers, as distinguishable from a base layer which is intended to function as a sump layer for the ink carrier fluid, not to adsorb dye. Hence, a key point made by Applicants in the interview was the failure of the Examiner to duly recognize the image-receiving function of the claimed ink-receiving layers. Frankly, the Examiner's statement that Applicants argued that a "base layer" cannot be considered an "ink receiving layer" seriously mischaracterizes Applicants' argument.

Second, the Examiner states that Applicants' argued that the inclusion of a blowing agent won't necessarily result in a foamed layer and that the claimed layer to be swellable, cannot include pigment as disclosed by DeBoer.

Correctly stated, Applicants argument was that the inclusion of a blowing agent in DeBoer or EP ‘901 would not necessarily result in the foamed layer of the present invention, as explained in further detail below, not that it would not result in a foamed layer.

Furthermore, Applicants’ argument was not that a swellable layer cannot include pigment or precludes the presence of particles, but that DeBoer’s layer base layer was not swellable because of the amount of pigment in comparison to the amount of the binder.

Finally, Applicants argued that the term “swellable layer” is a well-known term of art in the field of inkjet media, not merely indicating that a component of a layer might “swell to some degree.” It was pointed out in the Interview that the Examiner is not his own Lexicographer, able to define terms as best fit the prior art. In a swellable layer, dye mainly diffuses into and through hydrophilic solid material, which material can highly swell in terms of layer thickness.

Applicants’ correctly stated arguments were believed to have been clearly and repeatedly stated during the Interview.

The issues referred to above will be discussed at appropriate points below in response to specific rejections raised in the last Office Action.

Rejection under 35 USC 103(a) over DeBoer et al (US 6,299,302)

Claims 1, 3-7 and 9-16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over DeBoer et al (US 6,299,302). According to the Office Action, DeBoer et al discloses an ink jet receiver sheet comprising a substrate and an ink receiving layer (column 2, lines 42-44). The Examiner states, “The ink receiving layer will be porous because it contains clay and will be swellable because it contains one or more water-swellable binders, such as polyvinyl alcohol or gelatin (see column 3, lines 20-56).” According to the Office Action, the layer includes a hardening agent (i.e. cross-linking agent) (column 4, lines 6-22) and a surfactant (column 4, lines 23-30). According to the Office Action, a blowing agent may be present (column 4, lines 41-52). Proportions of surfactant are set forth in Table 1. According to the Office Action, the medium described in DeBoer et al. is formed by applying the

coating mixture to the support and curing (column 6, lines 23-40), and this curing at a raised temperature will inherently cause the blowing agent to decompose so that the layer will be foamed to some degree. The Office Action asserts that because the binder is a water-swellable polymer, the ink receiving layers are “capable of absorbing dye within the polymer”. The Office Action states that Applicants’ use of “consisting essentially of” language does not preclude the presence of other ink absorptive layers.

Further, according to the Office Action, DeBoer et al. discloses supports of paper, polyester, etc. (column 3, lines 5-16) and from this disclosure, it would have been obvious to one of ordinary skill in the art to form the support of polyethylene terephthalate because this is the most commonly used polyester support in the art. The Office Action acknowledges that DeBoer et al. does not disclose the amount of blowing agent that would be present, if included, but asserts that it would have been obvious to one of ordinary skill in the art to determine the amount for inclusion so that it performs its intended function and by so doing results in a medium with desired ink absorption characteristics so that the medium produces a relatively small dot for a given ink drop size (column 1, lines 45-51).

In addition, with respect to DeBoer et al., the Office Action asks what evidence there is that the polymer is insufficient to enable swelling, and how much swelling is required for a layer to be called swellable. According to the Office Action, DeBoer et al. clearly disclose swellable polymers, i.e. polyvinyl alcohol, water absorbent starch, gelatin etc. (column 3, line 48 to column 4, line 5).

For at least the following reasons, Applicant traverses the rejection.

DeBoer et al. (in US 6,299,302) are concerned with an ink jet receiver which provides variable dot sizes for use with large droplet inkjet printers, comprising a substrate, an ink receiving layer disposed over the substrate and a removable ink delivery layer, which in response to a droplet of ink absorbs a portion of the ink and delivers another portion of the ink to the ink receiving layer (see column 2, lines 1-8). The ink receiving layer is composed of a number of essential components, including clay, one or more water-soluble binders, one or more hardening agents and optionally colloidal silicas (see column 3, lines 21-23). According to Table 1 of DeBoer et al., *the water soluble polymer component is generally in the range from 2-15% and preferably from 5-12% by weight*. Amongst a list of additional materials that may be useful in the ink receiving layer is mentioned blowing agents, although no blowing agents are utilized in the specific embodiments.

Claim 1, from which claims 3-7, 9-14 and 17-18 depend, is directed toward a *swellable porous* inkjet recording medium comprising a support and one or more *swellable porous* ink receiving layer(s), said one or more ink receiving layer(s) comprising a *swellable porous foamed hydrophilic polymer*, wherein the one or more swellable porous ink receiving layer(s) are essentially capable of absorbing dye from an applied ink within the polymer.

There is no disclosure in DeBoer et al. of a swellable porous inkjet recording **medium** nor of a swellable porous ink receiving **layer** comprising a swellable porous foamed hydrophilic polymer.

The inkjet receiver described in DeBoer et al. has, as an essential feature, an upper ink delivery layer, which “must be thick enough to absorb and contain a significant portion of the ink droplet” (see column 5, lines 59-62 of DeBoer et al), which in practice is said to be between 1 and 10 microns and is typically made up of one or a mixture of water soluble polymers (see column 5, lines 27 to 52). An inkjet receiver having such an essential ink-retaining upper layer of swellable polymer material can in no way be said to be a porous receiver, since a porous receiver’s function, as understood by those skilled in the art, is one which enables the rapid uptake of ink upon application during inkjet printing. This is supported by the assertion by the named inventor on US 6,299,302, Charles DeBoer, in the

accompanying Declaration, that the inkjet receiving element prepared in the example of DeBoer was “definitely not porous,” having a non-porous top (delivery layer). Given the disclosure in DeBoer et al. relating to the composition and purpose of the ink delivery layer of the inkjet receiving element described therein, there is no reason nor motivation for the skilled person to adapt the inkjet receiving element of DeBoer et al to make it into a porous receiver by replacing DeBoer’s essential ink delivery layer with a porous layer and no indication or suggestion in DeBoer et al. of any benefit or means of doing so whilst maintaining the purpose of the DeBoer’s invention. Accordingly, it is respectfully submitted that it is not obvious in view of the disclosure in DeBoer et al. to adapt the inkjet receiving element disclosed therein to form a porous receiver.

The Examiner alleges that because the ink receiving layer of DeBoer et al. contains clay, it will be a porous layer and because it contains one or more water-swellable binders, it will be a swellable layer. However, this does not necessarily follow. Applicants submit, however, that whilst particles are capable of forming a porous layer (e.g. by an agglomeration of silica particles held together by a small amount of hydrophilic polymer binder) and a hydrophilic polymer is capable of forming a swellable layer (that swells to absorb applied ink rather than taking ink up into pores between particles by capillary action), the presence of particles or of hydrophilic polymer in a layer does not necessarily impose the respective properties of porosity and swellability upon that layer. The skilled person in the art would understand that a receiver consisting mainly of inorganic particulate with sufficient binder to hold it together is a porous receiver (because it has pores located between the particles which are capable of absorbing applied ink by capillary action and storing the absorbed ink) and a layer that is mainly hydrophilic polymer such that it swells on application of ink in order to absorb a dye is a swellable (or non-porous) receiver. It is a matter of fact in a particular receiver having a particular composition whether the receiver is essentially porous or not and whether it is essentially swellable or not, and those skilled in the art would have an understanding of this.

Furthermore, in the context of assessing a claim in view of a prior art reference, it should not be a requirement to define the precise point along an alleged continuum that a swellable layer becomes a porous particulate layer, but merely to establish whether the prior art reference anticipates the invention as claimed and whether the skilled person would take the steps necessary to put the claimed invention into effect based on the disclosure of that prior art reference. In other words, it is not appropriate to require *hard* boundaries in these circumstances nor is it reasonable to require that the numerical limits of swellable and porous in terms of a particular composition are defined, for the reasons described above.

In the present case, it is submitted that whilst the ink receiving layer of DeBoer et al. would appear to be a porous layer, it could not fairly be described as a swellable layer. The teaching that 2-15% of the layer is a binder polymer (see Table 1 of DeBoer et al) illustrates this and it is submitted that a receiving layer with up to 15% of polymer would not demonstrate any appreciable level of swelling and could not be fairly described as a swellable layer. This is supported by the two accompanying Declarations. Furthermore, the skilled person in the art would not be inclined to increase the proportion of polymer material in the receiving layer because: firstly, this would likely diminish the porosity, and ultimately remove the porosity, of such a layer in which porosity there is a particular perceived benefit; and secondly, because the disclosure of DeBoer et al encourages the use of a preferred amount of polymer of from 5-12% and most preferably about 8% (see Table 1 and column 5, lines 9-12 of DeBoer). Accordingly, it is submitted that even if the skilled person were motivated to make the ink delivery layer porous so that the ink jet receiving element of DeBoer et al were made a porous receiver, it would not be obvious to add sufficient hydrophilic polymer binder to the receiving layer to render it swellable.

Further, in relation to claim 1, the Examiner alleges that blowing agents are well known and that one of ordinary skill in the art would have expected such agents to result in gas bubbles in the receiving layer of DeBoer's ink receiving element. Firstly, as mentioned above, it is Applicants' contention not that for the claimed layer to be swellable it cannot include

pigment, but that it cannot include pigment in the quantity disclosed in DeBoer et al. Secondly, it is submitted that whilst blowing agents are mentioned as one of a number of optional additional materials useful in the ink receiving layer of DeBoer et al., there would be no motivation for one of ordinary skill in the art in possession of DeBoer et al to include a blowing agent in the preparation of an ink-receiving layer used as an image-receiving layer. In DeBoer et al., there is no disclosure of how one might utilize blowing agents in the particular formulations described nor of any benefit of doing so other than perhaps increased porosity for a sump layer.

Furthermore, even if the skilled person were for some reason motivated to consider incorporating a blowing agent into a receiving layer, it is submitted that this would not be a trivial matter in general. The accompanying Declaration by Charles DeBoer, named inventor on DeBoer et al., indicates that the inclusion of blowing agents in the laundry list of potential additives was not based on any experimental backup and that “addition of a blowing agent to the formula used in the Example of US 6,229,302 would probably have no effect at low levels, and at high levels would probably cause bubbles and non-uniformities on a scale at least 10 times larger than the size of inkjet droplets.” This may not be a critical concern for an underlying sump or base layer, but such foaming could likely cause havoc with the image in an image-receiving layer. Hence, it would not be obvious, therefore, for one of ordinary skill in the art in possession of DeBoer et al. to attempt to prepare a foamed polymer image-receiving layer by incorporation of blowing agents into the claimed ink-receiving layer, with any expectation of success.

Accordingly it is submitted that claim 1 is patentable over DeBoer et al.

Claims 3-7, 9-14, 17 and 18 are patentable over DeBoer et al at least by virtue of their dependence upon patentable claim 1.

Claim 13, which is dependent upon claim 1, is directed toward a *swellable porous* inkjet recording medium comprising a support and one or more *swellable porous* ink receiving layer(s), said one or more ink receiving layer(s) *consisting essentially of a swellable porous foamed hydrophilic polymer* and, optionally, a surfactant, wherein the one or more swellable

porous ink receiving layer(s) are essentially capable of absorbing dye from an applied ink within the polymer.

The Office Action states, under point 5, as follows:

...With respect to claims 13-16, ‘consisting essentially of’ is to be treated as comprising unless there is a clear indication in the specification and claims of what the basic and novel characteristics are. The Examiner has considered the specification and claims and has not found them to clearly indicate that additional layer would have a materially affect of the basic and novel characteristics of the invention. Therefore, according to the Office Action, additional layers such as the ink delivery layer of DeBoer et al may be present.

It is respectfully submitted, however, that the Examiner’s interpretation and treatment of this claim with the “consisting essentially of” limitation is inappropriately open. The phrase “consisting essentially of” has a well understood meaning in US patent prosecution, which has been verified by case law arising from decisions of the Court of Appeal of the Federal Circuit and incorporated into the Manual of Patent Examining Procedure (MPEP). According to these sources, “consisting essentially of” is consistently interpreted to mean a *middle ground between “comprising” and “consisting of”* (see page 8-189 to 8-192 of the Chisum treatise, Matthew Bender & Co., Inc and in particular the second paragraph on page 8-191, with reference to *PPG Industries, 1998*):

The phrase “consisting essential of” is said to *limit the scope of a claim to the specified materials or steps “and those that do not materially affect the basic and novel characteristics” of the claimed invention* (Manual of Patent Examining Procedure, Section 2111-03, Revision 3, August 2005, with reference to *In Re Herz, 1976*). According to MPEP (Section 2111-03, Revision 3, August 2005, page 2100-54, column 2), and consistent with the comments of the Examiner in the telephone Interview of November 26, 2006, *for the purpose of searching and for applying prior art under 35 USC 102 and 103, absent a clear indication in the specification of what the basic and novel characteristics actually are, “consisting essentially of” will be construed as equivalent to “comprising” [emphasis added]*. This construction, which is being adopted in the present case by the Examiner, should **only** be applied

according to MPEP in the absence of a clear indication of what the basic and novel characteristics actually are.

In the present application, the basic and novel characteristics of the present invention, including the swellable porous foamed hydrophilic polymer used in the present ink receiving layer, is clearly indicated in the specification. For example, at page 2, line 15-19, it is clearly indicated that the invention enables rapid ink absorption whilst maintaining image stability achieved from a non-porous medium. These clearly indicated characteristics are also the characteristics used in the Examples to demonstrate the efficacy of an inkjet recording medium according to the invention. As such, a claim requiring that the ink receiving layer consists essentially of a swellable porous foamed hydrophilic polymer should not be interpreted merely as “comprising”, but as potentially including other components which do not have a material affect on the identified properties, yet excluding those which have a material and deleterious effect on the porosity or image-stabilising capacity of the inkjet recording medium.

Whilst the Examiner would no doubt contend that even if the basic and novel characteristics of the invention are clearly indicated in the specification, *where the Applicant contends that additional materials in the prior art are excluded by the recitation of “consisting essentially of”* (MPEP, Section 2111-03, Revision 3, August 2005, page 2100-55, column 1, with reference to *In Re De Lajarte, 1964*), the burden lies with the Applicant to show that the introduction of the additional components would materially change the characteristics of the applicant’s invention, it is submitted that this burden is relieved by the submission of reasoned argument identifying those features of a prior art reference that do materially affect the basic and novel characteristics of the composition of the invention and would be readily appreciable by one skilled in the art. The presentation of such an argument, it is submitted, is sufficient to *show that the introduction of such additional components would materially change the characteristics of Applicants’ invention*, especially where the change would be appreciable by one skilled in the art.

In the present case, it would be understood and appreciated by one skilled in the art that the introduction of an amount of inorganic particulate material, such as clay, of from 30-80% and preferably form 50-70% by weight, and optionally an additional amount colloidal silica, (as taught in DeBoer et al) into an ink receiving layer of a medium of the present invention would materially and deleteriously affect the ability of the inkjet recording element of the present invention to perform its clearly indicated basic characteristic of retaining its swellable porous foamed hydrophilic polymer characteristic (i.e. its ability to effectively foam during manufacture) and maintain a level of image stability comparable with a non-porous medium.

Accordingly, an inkjet recording medium having an ink receiving layer consisting essentially of a swellable porous foamed hydrophilic polymer and, optionally a surfactant, should be interpreted as excluding an amount of clay of from 30-70% by weight, such as that described in DeBoer et al. One of ordinary skill in the art would not be led by the teaching of DeBoer et al to reduce the amount of clay included in the layer other than to a minimum of 30% and to substitute the clay for colloidal silica, which has a similar effect. Accordingly, it is submitted that claim 13 is patentable over DeBoer et al. It is submitted that claim 18, which is dependent upon claim 1, is patentable over DeBoer et al for at least the same reasons.

Claim 14, which is dependent upon claim 1, is directed toward a *swellable porous* inkjet recording medium, which *consists essentially of* a support and one or more *swellable porous* ink receiving layer(s), said one or more ink receiving layer(s) comprising a *swellable porous foamed hydrophilic polymer*, wherein the one or more swellable porous ink receiving layer(s) are essentially capable of absorbing dye from an applied ink within the polymer.

The same issues raised by the Examiner with respect to claim 13 in connection with the phrase “consisting essentially of” were raised, under point 5 of the Office Action of August 2, 2006, with respect to claim 14, as set out above. The arguments submitted by Applicants above in connection with the interpretation of the phrase “consisting essentially of” are relied upon.

In the present case, in connection with claim 14, it would be understood and appreciated by one skilled in the art that the introduction of a

water soluble polymer layer (such as the ink delivery layer in DeBoer et al.) above the ink receiving layer, in an amount capable of and intended to absorb a substantial portion of an applied ink and having a preferred thickness of from 2-5 microns (see column 5, line 64 of DeBoer et al.), would materially and deleteriously affect the ability of the inkjet recording element of the present invention to perform its clearly indicated basic characteristic of rapidly absorbing applied ink in a manner comparable to a conventional porous receiver. This appreciation is supported by the disclosure in the Example in DeBoer (see column 6, lines 44-45 of DeBoer et al.) of the need to allow the printed receiver up to three minutes to *equilibrate*, which demonstrates the long drytime associated with having an additional layer such as that.

Accordingly, an inkjet recording medium consisting essentially of a support and one or more swellable porous ink receiving layers should be interpreted as excluding an ink delivery layer such as that described in DeBoer et al. One of ordinary skill in the art would not be led by the teaching of DeBoer et al. to reduce the amount or size of an ink delivery layer, applied above an element according to the invention to the extent that it would no longer materially affect the basic characteristics of the composition for at least two reasons. Firstly, there is no indication or suggestion in DeBoer et al. that the thickness and composition of the ink delivery layer should be reduced or the extent that would be necessary to increase the rate of ink absorption; and secondly, the ink delivery layer described in DeBoer et al has the specific purpose of absorbing and storing applied ink and is necessarily of a certain thickness and composition, which purpose is inconsistent with ensuring a rapid absorption of applied ink into the remainder of the element below. Accordingly, it is submitted that for at least the reasons set out above, claim 14 is patentable over DeBoer et al.

Claim 16 is directed toward a *swellable porous* inkjet recording medium **consisting essentially of** a support and one or more *swellable porous* ink receiving layer(s) supported on said support, comprising a *swellable porous foamed hydrophilic polymer*, wherein the one or more swellable porous ink receiving layer(s) are essentially capable of absorbing dye from an

applied ink within the polymer, differing from other porous inkjet recording media in which dye is held in pores located between particles.

The same issues raised by the Examiner with respect to claim 13 in connection with the phrase “consisting essentially of” were raised, under point 5 of the Office Action of August 2, 2006, with respect to claim 16, as set out above. The arguments submitted by Applicant above in connection with the interpretation of the phrase “consisting essentially of” are relied upon. For at least the same reason as for that presented with regard to claim 14 above, claim 16 is patentable over DeBoer et al.

Claims 17 and 18, which is dependent upon claim 1 and 16, respectively, is directed toward a *swellable porous* inkjet recording medium, which comprises a support and a plurality of swellable porous ink receiving layers supported on said support, each of said plurality of swellable porous ink receiving layers comprising a *swellable porous foamed hydrophilic polymer*, wherein the one or more swellable porous ink receiving layer(s) are essentially capable of absorbing dye from an applied ink within the polymer.

There is no disclosure in DeBoer et al. which would direct one skilled in the art to prepare an inkjet recording element having more than one ink receiving layer, much less having more than one swellable porous ink receiving layer and no direction that such plurality of receiving layers should comprise a swellable porous foamed hydrophilic polymer, having regard to the discussion above. Accordingly, it is further submitted that claim 17 is patentable over DeBoer et al.

Claims 19 and 20, which is dependent upon claim 1, is directed toward a *swellable porous* inkjet recording medium in which the layers above the support *consist of* the one or more *swellable porous* ink receiving layers. Accordingly, the ink recording element of DeBoer et al. having an ink delivery layer disposed thereon would not be interpreted as falling within the scope of present claim 18. There is nothing in the disclosure of DeBoer et al. that would direct the skilled person to remove the ink delivery layer to prepare an element for use in inkjet printing. On the contrary, the ink delivery layer is essential to the performance of the element described in DeBoer et al. and the reader is only directed to remove the delivery layer to reveal a printed image

after inkjet printing has taken place. Accordingly, it is submitted that for at least the above reasons claim 18 is patentable over DeBoer et al.

For at least the above reasons, reconsideration and withdrawal of the rejection are in order.

Rejection under 35 USC 102(b) over EP 1060901

Claims 1, 4-6, 10, 13 and 14 were rejected under 35 U.S.C. §102(b) as being clearly anticipated by EP 1060901 ('901). According to the Office Action, EP'901 discloses a support which may be a polyethylene terephthalate (paragraph 14) and base layer of hydrophilic resin (paragraphs 18-19) which is inherently swellable based upon the resins from which it may be formed. According to the Office Action, the layer may be foamed with foaming agent or blowing agent (see paragraph 22) and may have mordant and other well known additives and surfactants present (see paragraphs 26-27 and 39). Further, according to the Office Communication of November 29, 2006, the Examiner found unpersuasive Applicants' representatives' argument that the "base layer" of EP'901 cannot be considered an "ink receiving layer" and asserted that there is nothing in the structure or materials of the base layer distinguishing from an ink receiving layer or from being capable of absorbing ink. The Office Action also states, under point 5, that the base layer in '901 is ink receiving and is capable of absorbing dye from applied ink within the polymer. According to the Office Action, if the base layer receives ink solvent as in EP'901, it is ink receiving and even though this layer is primarily there to absorb solvent, to the extent that dye passes through to this layer, it is capable of swelling to absorb dye as claimed.

For at least the following reasons, Applicants traverse the rejection.

EP-A-1,060,901 (the EP'901 patent) is concerned with an ink jet image recording element comprising a support, an absorbent layer and a top layer which is ink receptive and comprises one or more hydrophilic polymers, gelatin, a crosslinking agent for gelatin and a humectant. On page 4, lines 22-24 of EP-A-1,060,901, it is stated that "a porous structure may be introduced into the base layer by the addition of ceramic or hard polymeric particulates,

by foaming or blowing during coating, or by inducing phase separation in the layer through introduction of non-solvent.” There is no exemplification in EP‘901 of the ink receiving layer being made porous, only that the option of making the base layer porous is there, although it is indicated at page 4, lines 27-28 that the introduction of porosity to the base layer may be detrimental to the performance of the inkjet recording element. The primary purpose of the base layer is “as a sponge layer for the absorption of *ink solvent*” [*emphasis added*] (see page 4, line 12 of ‘901).

Claim 1, from which claims 3-7, 9-14 and 17-18 depend, is directed toward a *swellable porous* inkjet recording medium comprising a support and one or more *swellable porous* ink receiving layer(s), said one or more ink receiving layer(s) comprising a *swellable porous foamed hydrophilic polymer*, wherein the one or more swellable porous ink receiving layer(s) are *essentially capable of absorbing dye from an applied ink within the polymer*.

It is submitted, firstly, that the inkjet recording element of EP‘901 is not a swellable porous inkjet recording medium as required by present claim 1, because the element of EP‘901 necessarily has an ink-receptive hydrophilic polymer top layer which has the purpose of absorbing and retaining image dye from an applied ink. The presence of non-porous hydrophilic polymer top layer such as that of EP‘901 would characterize that receiver as a non-porous receiver as would be understood by one of ordinary skill in the art, irrespective of whether one or more underlayers were themselves porous in nature. Specifying that an inkjet recording medium is porous, as in present claim 1, imposes certain functional attributes to that recording element in the context of the art, those attributes being that there is a porous nature associated with one or more portions of the receiver *and* that applied ink has access to the porous nature of the receiver thereby enabling rapid uptake of applied ink. An upper layer such as that in EP‘901 would inhibit access to porous layers beneath thus inhibiting rapid uptake of ink.

Secondly, it is submitted that the base layer of EP‘901 is not an *ink receiving layer* as required by the present claims in the context of the present application (i.e. being capable of absorbing dye from applied ink within the polymer), since it is present primarily as a sponge to absorb *ink solvent* (see page 4, line

12) and *in situ* in the inkjet recording element of '901, its ability to absorb dye from applied ink would be severely hampered by the presence of the ink absorbing top layer above. As used in the present claims 1 and 16, the so-called ink receiving layer is, in particular, an image receiving layer, in which the dye of an applied ink is absorbed within the swellable porous foamed hydrophilic polymer of the ink receiving layer. In other words, in the context of the present application, the claimed ink receiving layer is an image-receiving layer.

The Examiner argues that there is nothing in the structure or materials of the base layer of EP'901 distinguishing from an ink receiving layer or from being capable of absorbing ink and that to the extent that dye passes through to this layer it is capable of swelling to absorb dye.

Applicants dispute the Examiner's assertion that the base layer of EP'901 is an ink receiving layer essentially capable of absorbing dye from an applied ink within the polymer. It is submitted that by being "essentially capable of absorbing dye from an applied ink", the layer is capable of absorbing dye on application of an amount of ink to the recording medium that enables the essential operation of the medium as an inkjet recording medium for the purpose of recording printed images. It may be that the base layer in EP'901 is capable of absorbing dye in the sense that it is made of a hydrophilic polymer and when in an isolated environment and without the top layer described in EP'901, application of ink may result in absorption of dye within the polymer. It does not necessarily follow, however, that such a layer would also be *essentially capable* of absorbing dye from an applied ink when in the context of the inkjet recording element of EP'901 and Applicants would contend that it is *not* the case. When placed in the context of the receiver of EP'901, having a top layer of absorbent polymer material, which has the purpose of absorbing and retaining dye from applied ink, the base layer of '901 may arguably be capable of absorbing some dye if sufficient ink is applied to the inkjet receiver such that the capacity of the dye receiving top layer is exceeded and residual dye in carrier fluid passes through to the base layer. However, it is submitted that having such a capability cannot be described as *essentially capable of absorbing dye*, because it is only capable in

exceptional circumstances and, in fact, would not even be desirable or an intended function. It is submitted, therefore, that to demonstrate a capability of the base layer of EP‘901 to absorb a dye from an applied ink would require application of so much ink as to effectively saturate the top image receiving layer such that the receiver would no longer effectively operate as an inkjet recording element.

Accordingly, for at least the above reasons, it is submitted that claim 1 is novel over EP‘901.

Claims 3-7, 9-14, 17 and 18 are novel over EP‘901 at least by virtue of their dependence upon novel claim 1.

Claim 14, which is dependent upon claim 1, is directed toward a *swellable porous* inkjet recording medium, which *consists essentially of* a support and one or more *swellable porous* ink receiving layer(s), said one or more ink receiving layer(s) comprising a *swellable porous foamed hydrophilic polymer*, wherein the one or more swellable porous ink receiving layer(s) are essentially capable of absorbing dye from an applied ink within the polymer.

It is submitted that claim 14 is further distinguished over EP‘901 by the requirement that the inkjet recording medium consists essentially of a support and one or more swellable porous ink receiving layers. The interpretation of the phrase “consisting essentially of” discussed above in relation to DeBoer et al. is adopted here and occupies a middle ground between “comprising” and “consisting of,” whereby it limits the scope of a claim to the specified layers and those that do not materially affect the basic and novel characteristics of the claimed invention. As mentioned in the discussion of claim 13 in relation to the rejection over DeBoer et al. above, it is clearly indicated in the specification the basic and novel characteristics the swellable porous foamed hydrophilic polymer used in the receiving layer provides the inkjet recording medium of the invention. For example, at page 2, line 15-19, it is clearly indicated that the invention enables rapid ink absorption whilst maintaining image stability achieved from a non-porous medium. These clearly indicated characteristics are also the characteristics used in the Examples to demonstrate the efficacy of an inkjet recording medium according to the invention. As such, a claim requiring that the

swellable porous inkjet recording medium consists essentially of a support and one or more swellable porous ink receiving layers should not be interpreted merely as “comprising,” but as potentially including other components which do not have a material affect on the identified properties, yet excluding those which have a material and deleterious effect on the porosity or image-stabilising capacity of the inkjet recording medium.

The presence of a top layer, as described in EP‘901 and having the function discussed above, on top of the swellable porous ink receiving layer as defined in claim 14 would, it is submitted, have a material effect on the ability of the inkjet recording element to rapidly absorb applied ink and thus on a basic and novel characteristic of the claimed invention. This submission is supported by the accompanying Declaration by Julie Baker, a named inventor on the present application and on the cited reference EP‘901. For this reason, it is submitted that claim 14 is further distinguished over EP‘901.

Claim 16 is directed toward a *swellable porous* inkjet recording medium *consisting essentially of* a support and one or more *swellable porous* ink receiving layer(s) supported on said support, comprising a *swellable porous foamed hydrophilic polymer*, wherein the one or more swellable porous ink receiving layer(s) are essentially capable of absorbing dye from an applied ink within the polymer, differing from other porous inkjet recording media in which dye is held in pores located between particles.

The same issues raised by the Examiner with respect to claim 14 in connection with the phrase “consisting essentially of” were raised, under point 5 of the Office Action of August 2, 2006, with respect to claim 16 as set out under the discussion of claim 16 with respect to DeBoer et al as set out above. The arguments submitted by Applicant above in connection with the interpretation of the phrase “consisting essentially of” are relied upon. For at least the same reason as for that presented in this regard for claim 14 above, it is submitted that claim 16 is novel over EP‘901.

Claim 17, which is dependent upon claim 1, is directed toward a *swellable porous* inkjet recording medium which comprises *a plurality of swellable porous ink receiving layers* supported on s support, each of said

plurality of swellable porous ink receiving layers comprising a *swellable porous foamed hydrophilic polymer*, wherein the one or more swellable porous ink receiving layer(s) are essentially capable of absorbing dye from an applied ink within the polymer.

It is submitted that claims 17 and 18 are further distinguished over EP‘901, because there is no disclosure in EP‘901 of a plurality of swellable porous ink receiving layers.

Claim 19, which is dependent upon claim 1, is directed toward a *swellable porous* inkjet recording medium in which the layers on the support consist of the one or more *swellable porous* ink receiving layers. Accordingly, the ink recording element of EP‘901, having a top layer of a hydrophilic polymer would not be interpreted as falling within the scope of present claim 18. Accordingly, for at least this reason, claim 18 is further distinguished over EP‘901.

For at least the above reasons, reconsideration and withdrawal of the rejection are in order.

Rejection under 35 USC 103(a) over EP 1060901

Claims 1, 3-7 and 9-16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over EP 1060901 (EP‘901). According to the Office Action, it would have been obvious to one of ordinary skill in this art to include a cross-linking agent in the foamed layer to improve strength of the layer. It would also have been obvious to one of ordinary skill in the art to include a fluorosurfactant disclosed by the reference because these surfactants are conventional surfactants in the art. Finally, determination of amounts of surfactant, blowing agent, and other materials would have been obvious to one of ordinary skill in the art to yield a layer as taught by the reference.

For at least the following reasons, Applicant traverses the rejection.

EP-A-1,060,901 (the EP‘901 patent) is concerned with an ink jet image recording element comprising a support, an absorbent layer and a top layer which is ink receptive and comprises one or more hydrophilic polymers, gelatin, a crosslinking agent for gelatin and a humectant. On page 4, lines 22-

24 of EP-A-1,060,901, it is stated that “a porous structure may be introduced into the base layer by the addition of ceramic or hard polymeric particulates, by foaming or blowing during coating, or by inducing phase separation in the layer through introduction of non-solvent.” There is no exemplification in EP‘901 of the ink receiving layer being made porous, only that the option of making the base layer porous is there, although it is indicated at page 4, lines 27-28 that the introduction of porosity to the base layer may be detrimental to the performance of the inkjet recording element. The primary purpose of the base layer is “as a sponge layer for the absorption of *ink solvent*” [emphasis added] (see page 4, line 12 of ‘901).

Claim 1, from which claims 3-7, 9-14 and 17-18 depend, is directed toward a *swellable porous* inkjet recording medium comprising a support and one or more *swellable porous* ink receiving layer(s), said one or more ink receiving layer(s) comprising a *swellable porous foamed hydrophilic polymer*, wherein the one or more swellable porous ink receiving layer(s) are *essentially capable of absorbing dye from an applied ink within the polymer*.

Having regard for the arguments above in support of the novelty of claim 1 over EP‘901, and in particular the submissions regarding the definition of the phrase “essentially capable of absorbing dye from an applied ink within the polymer,” it is submitted that given that the invention described in the EP‘901 patent is primarily concerned with a non-porous hydrophilic polymer image-receiving layer (the top layer) having a hydrophilic *sponge* layer beneath, there is no indication or suggestion in the EP‘901 patent that would lead one of ordinary skill in the art to reduce the thickness or change the composition of the top layer to enable the element to be recharacterised as a *porous* receiver instead of a non-porous receiver *and* to utilize a porous foamed hydrophilic polymer in each ink receiving layer in order to improve image stability whilst minimizing dry time. For at least the above reasons, it is submitted that claim 1 is patentable over ‘901.

Claims 3-7, 9-14, 17 and 18 are patentable over EP‘901 at least by virtue of their dependence upon patentable claim 1.

Claim 14, which is dependent upon claim 1, is directed toward a *swellable porous* inkjet recording medium, which *consists essentially of* a support and one or more *swellable porous* ink receiving layer(s), said one or more ink receiving layer(s) comprising a *swellable porous foamed hydrophilic polymer*, wherein the one or more swellable porous ink receiving layer(s) are essentially capable of absorbing dye from an applied ink within the polymer.

The same issues raised by the Examiner with respect to claim 13, as discussed under the rejection over DeBoer et al above, in connection with the phrase “consisting essentially of” were raised, under point 5 of the Office Action of August 2, 2006, with respect to claim 14. The arguments submitted by Applicant above in connection with the interpretation of the phrase “consisting essentially of” are relied upon.

In connection with claim 14, it would be understood and appreciated by one skilled in the art that the introduction of an ink receptive hydrophilic polymer layer (such as the top layer in ‘901) having the purpose of absorbing and retaining image dye from an applied ink would, as discussed above, have a material effect on the ability of the inkjet recording element to rapidly absorb applied ink and thus on a basic and novel characteristic of the claimed invention. Accordingly, an inkjet recording medium consisting essentially of a support and one or more swellable porous ink receiving layers should be interpreted as excluding a top layer such as that described in ‘901. One of ordinary skill in the art in possession of EP‘901 would not be led by the teaching therein to reduce the amount or composition of the top layer, applied above an ink receiving layer as defined in claim 14, to the extent that it would no longer materially affect the basic characteristics of the composition for at least two reasons. Firstly, there is no indication or suggestion in EP‘901 that the thickness and composition of the top layer should be reduced or the extent that would be necessary to increase the rate of ink absorption; and secondly, the top layer described in EP‘901 has the specific purpose of absorbing and storing applied ink and is necessarily of a certain thickness and composition, which purpose is inconsistent with ensuring a rapid absorption of applied ink into the remainder of the element below. In other words, there is no motivation or teaching that would lead the skilled person to adapt the

element disclosed in ‘901 to form an inkjet recording medium as defined by present claim 14. Accordingly, it is submitted that for at least the reasons set out above, claim 14 is patentable over EP‘901.

Claim 16 is directed toward a *swellable porous* inkjet recording medium **consisting essentially of** a support and one or more *swellable porous* ink receiving layer(s) supported on said support, comprising a *swellable porous foamed hydrophilic polymer*, wherein the one or more swellable porous ink receiving layer(s) are essentially capable of absorbing dye from an applied ink within the polymer, differing from other porous inkjet recording media in which dye is held in pores located between particles.

The same issues raised by the Examiner with respect to claim 13 in connection with the phrase “consisting essentially of” were raised, under point 5 of the Office Action of August 2, 2006, with respect to claim 16, as set out in the discussion of claim 13 with respect to DeBoer et al. above. The arguments submitted by Applicant above in connection with the interpretation of the phrase “consisting essentially of” are relied upon. For at least the same reason as for that presented with regard to claim 14 above, claim 16 is patentable over EP‘901.

Claim 17, which is dependent upon claim 1, is directed toward a *swellable porous* inkjet recording medium, which comprises a support and a plurality of swellable porous ink receiving layers supported on said support, each of said plurality of swellable porous ink receiving layers comprising a *swellable porous foamed hydrophilic polymer*, wherein the one or more swellable porous ink receiving layer(s) are essentially capable of absorbing dye from an applied ink within the polymer.

There is no disclosure in EP‘901 which would direct one skilled in the art to prepare an inkjet recording element having more than one swellable porous ink receiving layer as claimed. Accordingly, it is further submitted that claims 17 and 18 are patentable over EP‘901.

Claims 19 and 20, which is dependent upon claim 1 and 16, respectively, are directed toward a *swellable porous* inkjet recording medium in which the layers over the support **consist of** the one or more *swellable porous* ink receiving layers.

Accordingly, the ink recording element of EP'901, having a top layer of a hydrophilic polymer would not be interpreted as falling within the scope of present claims 19 and 20. Given that according to the disclosure of EP'901, a top layer of a hydrophilic polymer, gelatin, a crosslinking agent for gelatin and a humectant is essential to the working of the invention described therein, there is no motivation and no indication nor suggestion for the skilled person to remove the top layer in preparing a recording medium for use in inkjet printing or to prepare such a recording medium without the top layer. Accordingly, it is submitted that for at least the above reasons claims 18 and 19 are patentable over EP'901.

For at least the above reasons, reconsideration and withdrawal of the rejection are in order.

Rejection under 35 USC 112, second paragraph

Claim 16 was rejected as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. According to the Office Action, it is unclear in claim 16 what is meant by “differing from other porous inkjet recording media in which dye is held in pores located between particles”. The Examiner asks, “In what way is this medium different?” The Office Action states that Applicants need to recite the structural differences rather than the conclusion that their medium is different. According to the Office Action, it is unclear how and to what extent applicants’ medium must differ from those of the prior art in order to meet the claim language.

The passage “essentially capable of absorbing dye from an applied ink within the polymer, differing from other porous inkjet recording media in which the dye is held in pores located between particles” means that the present inkjet medium is different from conventional porous receivers having a layer of particles held by a minimal amount of polymer binder, since the ink receiving layers of the invention are essentially capable of absorbing dye within the polymer material (i.e., not in particle-defined pores) from which the layer is largely formed. It is submitted that this is a clear and unambiguous statement which corresponds with a very definite structural difference. An

alternative, realistic and at least as likely interpretation of the passage in question is not apparent to the Applicant. In the absence of such an alternative interpretation, which Applicant contends would be necessary in order for any claim of confusion or lack of clarity to stand up, it is requested that the rejection be reconsidered and withdrawn.

The Examiner's time in participating in a telephone conference with Applicant's representatives on November 26 is appreciated.

Should the Examiner intend to maintain her rejections and to recommend the application for refusal, it is requested that the Examiner refer the recommendation and the substance of this response to her supervisor for approval. The Examiner's offer during the telephone Interview of November 26, 2006, to refer pertinent issues to her supervisor for her opinion is appreciated. Furthermore, in the event of an appeal against an unfavorable decision, the Examiner is respectfully requested to arrange a pre-appeal conference with a view to ensuring an expedited procedure and again her indication in the Interview to do such is appreciated.

In view of the foregoing remarks, reconsideration of the above identified patent application is respectfully requested. Prompt and favorable action by the Examiner is earnestly solicited. Should the Examiner require anything further, the Examiner is invited to contact Applicant's representative.

Respectfully submitted,



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